

TRICHOPTERYGIDAE OF AUSTRALIA AND ADJACENT ISLANDS.

DESCRIPTIONS OF TWO NEW GENERA AND EIGHTEEN NEW SPECIES.

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(Seventeen Text-figures.)

[Read 27th July, 1932.]

In this paper, my third on the family, are described eighteen new species under eight genera, two of which are proposed as new. This brings the number of described species from Australia and adjacent islands to 57, and from the mainland and Tasmania only, including Groote Eylandt, to 41. Table I shows the distribution of the numbers of species over the world and includes those described in the present paper. It has been facilitated by the excellent manner in which the records have been left by Matthews, to whom we owe a great debt of gratitude for our knowledge of these creatures.

Table I. *Summary of Localities.*

Europe: British Isles, 23; Continental, 21; unlocated, 33. Total, 77.
Asia: Continental, 5; Islands, 12. Total, 17.
North America: United States, 23; Canada (incl. B.C.), 12; Mexico, 1; unlocated, 13. Total, 49.
Central America, 36.
South America, 14.
West Indies, 10.
Africa, 5.
Various Islands: Canary Islands, 12; New Zealand, 5; Sandwich Islands, 3; others, 6. Total, 26.
Miscellaneous, 10.
Australia and adjacent Islands: Federal Capital Territory, 1; Victoria, 11; New South Wales, 16; Queensland, 4; Western Australia, 3; Tasmania, 5; Norfolk Island, 1; Lord Howe Island, 3; Murray Island, 1; Papua, 3; Fiji Islands, 5; New Caledonia, 2; Rennel Island, 1; Groote Eylandt, 1. Total, 57.
Total world species, 301.

The uneven distribution, as shown by the table, is due to the lack of systematic collecting, and it will readily be appreciated that over large tracts of land surface the Trichopterygid fauna has been either unexplored or else, if specimens have been collected, they have not been described.

For the benefit of collectors and in the hopes that it may lead to more species becoming known to science, in Table II are listed the situations, in which Trichopterygidae have been found up to date.

Table II. *Environment of Trichopterygidae in Nature.*

1. In rotting leaves: *Leaduadicus*, *Epibaptus*, etc.
2. In fallen leaves: *Ptenidium*, *Actinopteryx*, etc.
3. On the under side of mouldy logs: *Philagarica*.
4. In fungi: *Isolumpia*, *Philagarica*.
5. Under bark: *Achosia*.
6. In rotten wood: *Ptilium*.
7. On the plant *Xanthorrhoea*: *Ptilium*.
8. In ants' nests: *Cnemadoxia*, *Rodwayia*.
9. Flying in sunlight: *Trichopteryx*.
10. Under log on sea beach: *Ptilium*.
11. Walking on mud on sea shore:
12. On river banks: *Actinopteryx*.
13. In river: *Hydroscapha*.

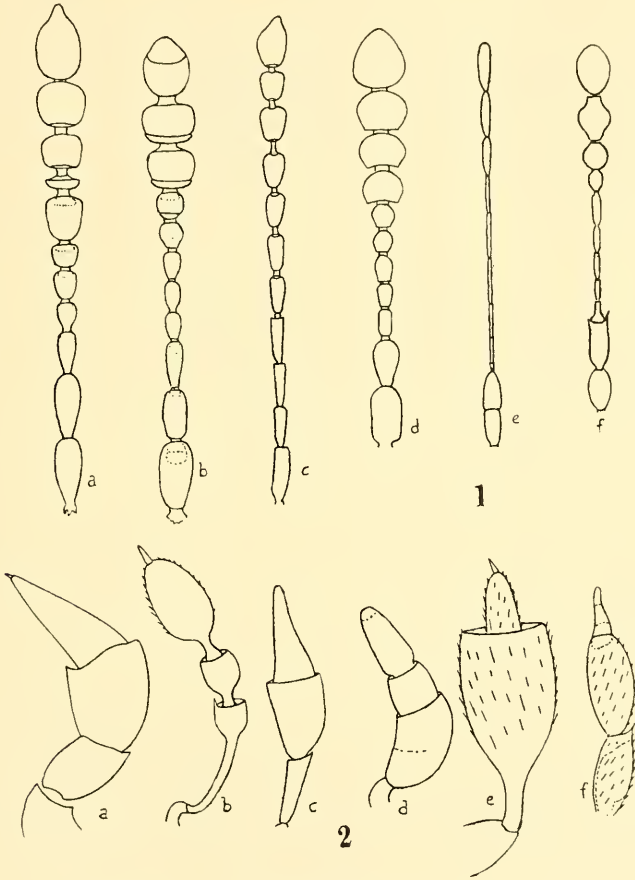
In searching through the materials mentioned under items 1, 2, 4, 5, and 6, the sieve, fly-wire mesh or finer, must be used to hold back the coarse débris and allow the beetles, together with the finer grains, to be spread out on a sheet of paper. The author uses three meshes and the small specimens fall through the finest.

On the question of the proper or most convenient place for the Trichopterygidae to occupy relatively to other families more or less allied, there has been a certain amount of agreement, in that their closeness to the Staphylinidae, Pselaphidae, Silphidae, Scydmaenidae, Scaphidiidae, and Histeridae is generally accepted. Consideration must necessarily be given to such characters as the antennae and palpi, and these should weigh most in this case, which is one of adjusting the several relative positions which are already assumed to be fairly close. The remarkable similarities and differences of the antennae and palpi will be seen in Text-figures 1 and 2. The following argument is offered in favour of the adoption of these structures as a basis: The organs used in performing the highest functions of which the creature is capable should be given priority. In botany the flower is essential and the reproductive organs are mostly used in determining families. In entomology, however, the reproductive organs are not so generally used for this purpose, but rather the organs of the head. In other words, it is appropriate in both branches of science to employ those organs which are the means whereby the individuals perform their highest functions. In the case of plants, reproduction characterizes and raises them above anything of which members of the mineral kingdom are capable. So in animal life, at any rate of the kind under consideration, the powers of the brain, whether we elect to call it that or something else, raise the members above those of the botanical world. The brain then performs through the sense organs, and hence these are used for our purpose.

It has been suggested by Mr. Oke that the apical slender portions of the palpi are apophyses, and there is certainly something of interest in the idea when we keep in mind the similar parts in the case of the allied families. However, in view of the structure of the bases of these appendages, and their mode of reception in the supporting segments, apparently designed to give mobility, I cannot agree that they are merely apophyses, and therefore accord them the full status of palp segments; that is to say, in the case of the Trichopterygidae. Now turning to Text-fig. 2, in the cases of the Scaphidiid (*a*), Pselaphid (*b*) and

Scydmaenid (c) examples chosen, it will be seen that each possesses a small appendage whose status as a full segment might be questioned. Evolutionists will find food for thought in reasoning this out.

With reference to the arrangement of the eight families, Staphylinidae, Pselaphidae, Scydmaenidae, Silphidae, Trichopterygidae, Scaphidiidae, Corylophidae and Phalacridae, so as to present their relative proximity to one another, it is my opinion that a linear arrangement is unsuitable; it leaves the members which it includes placed as a number of peas in a row, and, without information

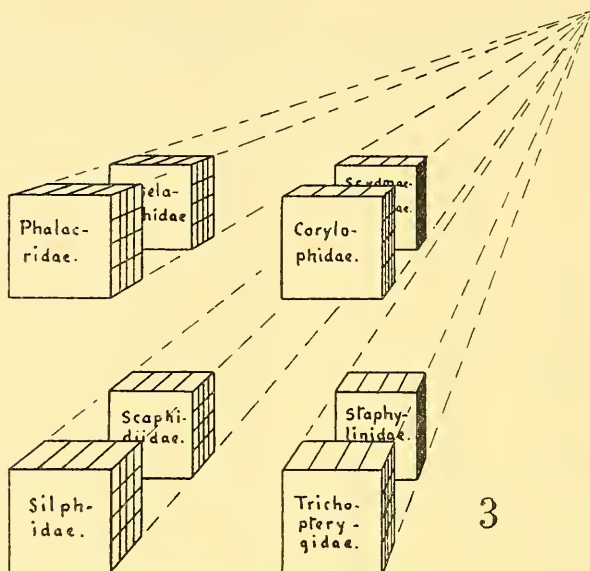


Text-figs. 1-2.

1.—Antennae of various families allied to Trichopterygidae. (a) Silphidae (*Catops* or *Choleva*); (b) Cryptophagidae (*Atomaria*); (c) Staphylinidae (*Conosoma rufipalpe*); (d) Scydmaenidae; (e) Scaphidiidae; (f) Trichopterygidae (*Philagarica pilosa*).

2.—Palpi of various families allied to Trichopterygidae. (a) Scaphidiidae; (b) Pselaphidae (*Palimbolus armatipes*); (c) Silphidae (*Catops* or *Choleva*); (d) Cryptophagidae (*Atomaria*); (e) Scydmaenidae; (f) Staphylinidae (*Conosoma rufipalpe*).

to the contrary, it would be presumed that the spacing were even. But in whatever order these items be arranged, it will be found that some of them become separated in the alignment more than is actually warranted by their characters. Moreover, any graphical representation by plane figures, such as



Text-fig. 3.—Relationship diagram.

triangles, pentagons, etc., though coming nearer the truth, is still inadequate, and a three-dimensional structure, such as is shown in Text-fig. 3, will be found more satisfactory.

In all cases except one the types of the species described herein are mounted on card; the exception is *Ptilium xanthorrhoeae*, a unique specimen and blind, which, owing to its peculiarities, needed special treatment and was mounted in Canada balsam after being drawn. On account of the loss of original shape of outline, to which the Canada balsam setting gives rise, mounting on card is preferred for the types, with balsam mounted specimens in addition where the number of available examples permits. The following species are mounted in Canada balsam: *Philagarica pilosa* Deane (3), *P. parvicornis* Deane (4), *P. parva* Deane (2), *P. pallida* Deane (2), *P. albipennis* Deane (1), *Epibaptus scutellaris* Deane (1), *Ptenidium* sp. (Launceston) (3), *Epoitia rotunda* Deane, *Ptilium xanthorrhoeae* Deane (1), *P. rennelensis* Deane (4), *Achosia femoralis* Deane (1), *A. cara* Deane (2), *A. gigas* Deane (1), *Cnemadoxia okei* Deane (2), *Actinopteryx colossus* Deane (4), *A. hercules* Deane (5), *Neotrichopteryx grandelytra* Deane (5), *Etronia convexa* Deane (5), *Trichopteryx jocosum* Deane (1), *T. australica* Deane (3), *T. convezior* Deane (3), *T. norfolkensis* Deane (2), *Paratuposa placentis* Deane (6), *Cnemadoxia leai* Deane (2).

On the affinity with the Staphylinidae it may be noted that the members of the subfamily Tachyporinae bear resemblances in several features, notably in the palpi, in which the subterminal segment is barrel-shaped and rather large,

whilst the terminal is slender, and the combination of the two is approaching that of the Trichopterygidae in general appearance. The species *Conosoma rufipalpe* Macl., from National Park, N.S.W., identified by Mr. A. M. Lea, and the English species *Tachinus ruficollis* Grav., exhibit these features. In larger Staphylinidae of other subfamilies, e.g., in *Hyperomma*, *Eulissus* and *Amphichroum*, there is very little evidence of relationship. In the Tachyporinae the shape of the head, especially at the front, is also a point of likeness, and in addition the general form of the insect is not at all unlike that of some species of the genus *Trichopteryx*, which fact becomes even more noticeable when the latter are seen alive and active in the sunshine, under which conditions they have the habit of extending the abdomen considerably at times. The antennae, too, of the Tachyporinae, although not bearing any strong likeness to the typical Trichopterygidae, are nevertheless of a shape which more nearly approaches these than do most of the other subfamilies of the Staphylinidae.

Key to Genera of Trichopterygidae from Australia and Adjacent Islands.

1. Posterior coxae large, subtriangular, contiguous 2
 Posterior coxae large, moderately separated 3
 Posterior coxae remote 5
2. Antennae short, prothorax widest before base *Paratuposa*
 Antennae moderate, prothorax widest at base *Philagarica*
3. Posterior coxae subquadrate, sternal process very large *Rodwayia*
 Posterior coxae subtriangular, sternal process normal 4
4. Posterior coxae deepest laterally, elytral apices narrow, eyes wanting ... *Cochliarion*
 Posterior coxae deepest medially, elytral apices broad, eyes present *Isolumpia*
5. Metasternum not attaining sides of body 6
 Metasternum attaining sides of body 8
6. Form ovate-convex, prothorax widest at base, sides of elytra tapering .. *Actinopteryx*
 Prothorax widest before base 7
7. Form quadrate-ovate, subdepressed, sides of elytra parallel *Etronia*
 Form oblong-ovate, elytra subparallel, their apices inversely oblique .. *Neotrichopteryx*
8. Prothoracic lateral margins irregular, eyes prominent, head produced in front
 *Epibaptus*
 Prothoracic lateral margins regular, eyes and head normal 9
9. Widest substantially across elytra, these completely covering abdomen 10
 Characters otherwise 12
10. Form wide 11
 Form narrow *Ptenidula*
11. Front abruptly convex, base of pronotum exposing mesonotum *Epoptia*
 Without these characters *Ptenidium*
12. Widest across prothorax *Trichopteryx*
 Prothorax not wider than elytra 13
13. Lateral margins subparallel 16
 Lateral margins strongly arcuate 14
14. Form wide, ovate, convex, posterior coxae moderately separated *Leaduadicus*
 Form not so wide, scarcely convex, posterior coxae extremely remote 15
15. Intercostal process scarcely developed, sternite sutures conspicuous, posterior tibiae not reaching beyond apex of abdomen *Achosia*
 Intercostal process well developed, sternite sutures not conspicuous, posterior tibiae reaching just beyond apex of abdomen *Cnemadoria*
16. Form broad, posterior tibiae reaching far beyond apex of abdomen, prothorax transverse *Leaptilodes*
 Characters otherwise *Ptilium*

PHILAGARICA PARVICORNIS, n. sp.

Oval; highly convex, margin entire, widest across base of elytra, yellowish-brown, underside of same colour. Head almost concealed from above, widely rounded in front, nitid, glabrous. Eyes black, scarcely visible from above; facets

coarse. Antennae short, 0·348 of length of body; club 2-segmented; scape short; pedicel rather large; segment 3 conic, rather short; 4 to 7 subcylindric; 9 scarcely thicker than 8; 10 nearly as large as 11, this ovate. Palpi with penultimate joint robust, subapical not deeply inserted. Pronotum highly convex, nitid, glabrous, almost vitreous; sides greatly rounded. Scutellum triangular, medium, glabrous, rather convex, hardly nitid. Elytra widest at base, full, convex, pubescent, close fitting, not dehiscent, suture not raised, projecting well beyond apex of abdomen. Wings pale-grey to white; stalk short. Prosternum glabrous, episterna strongly concave, uneven. Mesosternum glabrous, its episterna marked by thin dark border. Intercoxal process acute, both side and anterior margins strongly concave. Metasternum pilose. Legs medium; anterior coxae rather prominent, contiguous; intermediate separated; posterior contiguous or almost so. Abdomen pilose. Tarsi slender, normal to rather short; claws rather long. Length 0·542 mm.; width 0·262 mm.

Habitat.—Groote Eylandt, North Australia (N. B. Tindale). Type in South Australian Museum.

Differs noticeably from *P. agilis* Deane, in having the antennal club two-segmented, the segments being also shorter. The mesosternal intercoxal process is sharper and the sides as described. Colour also seems a constant feature. In outline, however, the two species resemble one another.

TRICHOPTERYX QUADRILATICA, n. sp. Text-fig. 5.

Subquadrate; lightly convex, broad, widest across prothorax, yellow, pubescent. Head medium, broadly rounded; clypeus produced a little downward, mouth parts prominent. Eyes deeply set, pearly white. Antennae with scape and pedicel large, scape ovate, pedicel subcylindric; segments 3 to 10 blackish-grey, club 3-segmented, the segments rather long. Pronotum widest at or just before base. Elytra quadrate, full, covering apex of abdomen. Prosternum orange-yellow, glabrous. Meso- and metasternum pilose. Metasternum with lateral margins reaching sides completely only on anterior two-thirds. Abdomen short. Anterior coxae globular, contiguous; intermediate coxae globular, nearly contiguous; posterior coxae lamelliform, remote, prominent, their trochanters ovate (thus differing from *T. australica* Deane). Legs broad, robust. Length 0·872 mm.; width 0·658 mm.

Habitat.—Fern Tree Gully, Vic. (R. R. Blackwood). Type in Coll. Deane.

This species is very unlike any other with which the author is acquainted, differing from *T. australica* Deane notably in its broad form, colour and elytra completely covering abdomen.

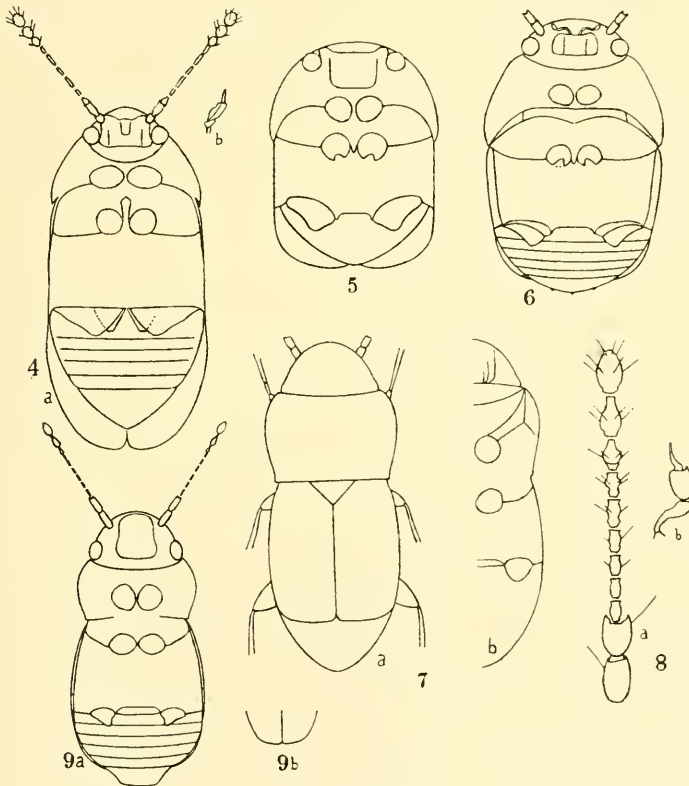
TRICHOPTERYX GRANDIS, n. sp.

Ovate; convex, robust, black, pubescent, widest a little across prothorax. Head medium, rounded in front; mouth parts rather concealed; genae glabrous, nitid, somewhat flat anteriorly. Eyes black, nitid, rather small, hardly visible from above, prominent below. Antennae medium, clothed with grey hairs; scape and pedicel dark amber; scape thick near base, rounded at base; pedicel normal; flagellum slender; club 3-segmented; segment 9 oval, not so large as 10 or 11; terminal segment tapering to apex. Prothorax widest just before base; margins more convex near angles than at sides; anterior angles moderately acute. Scutellum normal. Elytra subquadrate, truncate; sides subparallel, gently curving; apices exposing pygidium; outer angles rounded. Prosternum very dark brown.

glabrous; mesosternum nearly glabrous. Metasternum attaining sides, pubescent, honeycombed; posterior intercoxal margin not concave; excavations for reception of coxae not deep, margins raised. Abdomen with apex not visibly tridentate. Legs very dark amber; anterior coxae large, globular, oval, prominent, contiguous; intermediate coxae round, depressed, separated only by sternal process. Posterior coxae large, broad, strongly lamellate. Femora broad; tibia robust, subcylindric, strongly setaceous and spinose. Tarsi and their claws rather large; claws strongly bent. Length 0.84 mm.; width 0.53 mm.

Habitat.—Lorne, Vic. (from leaf débris collected by G. H. Moran). Type in Coll. Deane.

This species somewhat resembles *T. australica* Deane in general facies; it can, however, be readily distinguished from it by the absence of any noticeable tridentation to the apex of abdomen, by the raised margin of the metasternum immediately in front of the posterior coxae, by the character of the curvature of



Text-figs. 4-9.

4.—(a) *Philagarica pilosa* Deane; (b) *P. parva* Deane; maxillary palp, showing effect of too rapid dehydration. 5.—*Trichopteryx quadrilatica*, n. sp. 6.—*Actinopteryx tillyardi*, n. sp. 7.—*Achosia cara*, n. sp. 8.—*Leaptiliodes lacunosa*, n. sp., (a) antenna, (b) palp. 9.—(a) *Ptilium ligni*, n. sp.; (b) *P. orientale*, n. sp.; apices of elytra.

the sides of pronotum, and by the larger size and different coloration of under-surface and antennae. Moreover the posterior legs are larger in proportion and the pedicel is not so wide as the scape.

ACTINOPTERYX TILLYARDI, n. sp. Text-fig. 6.

Oval; highly convex, very dark brown, pubescent, widest across pronotum. Head broadly rounded in front, black with light brown fascia near base. Eyes silvery, scarcely prominent. Antennae rather small; scape and pedicel cylindrical, yellowish-brown; flagellum dark grey; segments 9, 10 and 11 forming the club; terminal setae strong. Pronotum scarcely nitid, granulate; pubescence more or less regular; widest a little before base; sides evenly curved; basal margin convex in centre; posterior angles acute, light brown. Scutellum medium, apex a little acute, sides faintly concave on posterior half; indistinct. Elytra quadrate, subparallel; apices slightly dehiscent. Abdomen pilose, trispinose, little exposed above. Prosternum and mesosternum glabrous, dark brown, the latter finely honeycombed. Metasternum almost black, pilose, its episterna tapering anteriorly. Legs amber-coloured. Length 1.11 mm.; width 0.71 mm.

Habitat.—Canberra, F.C.T. (Dr. R. J. Tillyard; leaf débris from tree ferns). Type in collection of Division of Economic Entomology, Canberra.

A closely allied form has recently been taken in large numbers at Fern Tree Gully, Victoria, by the Rev. A. H. Westley and the author, differing slightly in the metasternal episterna. Pending further supply of specimens from intervening districts, I do not feel inclined to say whether the differences are specific or merely varietal.

ACHOSIA CARA, n. sp. Text-fig. 7.

Elliptic; highly convex, scantily pubescent, brownish-yellow, widest a little across elytra. Head somewhat hemispherical, front evenly rounded, thinly pubescent and light brown on anterior declivity, glabrous and yellow on posterior portion. Eyes small, cream-coloured, very indistinct. Palpi small, rather prominent. Antennae of normal length, regularly clothed with hairs; scape and pedicel rather long, subcylindric, light yellow, their apices light brown; flagellum cream-coloured; segment 3 short; 3 to 6 subcylindric, 7 and 8 barrel-shaped, 9 to 11 obovate; 8 to 11 increasing in size. Pronotum convex, transverse, widest before middle, anterior and posterior margins parallel, side margins convex except near posterior angles; sparsely pubescent, pubescence short, white; anterior angles obtuse, rounded, posterior angles almost acute; light brown at base. Scutellum broad, short, triangular; sides rectilinear; apex obtuse; brown, adorned with very few hardly discernible hairs. Elytra hardly convex, almost depressed, truncate, widest at middle, sides evenly curved; orange-yellow on basal two-thirds; brown on apical third; pubescent, pubescence white, longer than that on pronotum; suture distinct, little darker than disc, not elevated; apices close fitting. Abdomen with four dorsal segments exposed above, these brown, paler than apices of elytra; pygidium narrowly rounded. Prosternum convex on centre, apex of antecoxal sternite prominent; sternite sutures dark and distinct near coxal cavities, becoming invisible near lateral margins; deep yellow, glabrous, nitid. Mesosternum deep yellow, glabrous, nitid; intercoxal process small, distinct, acute. Metasternum convex, orange-yellow, brown at posterior margin; attaining sides throughout; lightly pubescent, pubescence golden. Anterior coxae globular, strongly contiguous, nitid, yellow; intermediate coxae globular, hardly contiguous.

nitid, light brown; posterior coxae small, flat, very remote. Femora rather broad, pale yellow; tibiae of normal thickness, a darker shade. Tarsi slender, basal segments of posterior pair somewhat robust. Length 0.64 mm.; width 0.253 mm.

Habitat.—Lord Howe Island, Mt. Gower (A. M. Lea); under bark. Type in South Australian Museum, cotypes in South Aust. Museum and Coll. Deane.

This rather handsome insect differs notably from *A. femoralis* Deane in having the side marginal convexity of pronotum set more forward, with the anterior angles rounded, and the posterior angles more pronounced. Other details as described render it very distinct from that species. The apices of the elytra will be obvious from the diagrams given with the descriptions.

ACHOSIA GIGAS, n. sp.

Elliptic; hardly convex, scarcely nitid, robust, light reddish or yellowish-brown, strongly setaceous, setae white; a little wider across elytra than prothorax. Head rounded in front, of medium size, darker than prothorax, smooth, lightly convex, almost glabrous. Eyes black. Palpi distinct, almost prominent, largest segment oval, pearly; basal segment slender, signate, terminal very slender. Antennae 0.477 of length of body; scape and pedicel light brown, flagellum and club flavous; pedicel open at apex, terminal segments not very thick. Pronotum of same colour as elytra, broad, very lightly convex, widest across middle, base not wider than that of elytra; posterior angles well formed, although side margins evenly curved. Scutellum medium. Elytra widest at middle, subrectangular; apices very broad, widely rounded; strongly setaceous, not entirely covering abdomen, leaving three dorsal segments exposed. Prosternum yellowish-brown, glabrous, sternites distinct, convex between boundaries, their surfaces not mutually conformable. Mesosternum yellowish-brown, almost glabrous; intercoxal process distinct, slender. Metasternum reddish-brown, pubescent; posterior margin not deeply excavated for reception of coxae. Abdomen golden-brown, setaceous; pygidium not spinose. Legs yellow, unicolorous, normal. Length 1.09 mm.; width 0.5 mm.

Habitat.—Upper Williams R., N.S.W. (Lea and Wilson). Type in South Australian Museum, cotype in Coll. Deane.

LEAPTILIODES, n. gen. Text-fig. 8, *a*, *b*.

Elliptic; somewhat depressed, widest (very little) across elytra. Head broadly rounded in front, convex, laevigate. Eyes rather small, visible from above. Antennae rather short, about 0.4 of length of body, scape and pedicel rather long, segments 1 to 4 normal, 5 to 11 ovate, globular, increasing in size. Palpi prominent, apical segment almost obsolete (?). Pronotum lacunose, almost papillate, widest just before middle; anterior angles obsolete, posterior small; sides not marginate, anterior margin convex, posterior slightly reflex; base not as wide as that of elytra. Scutellum short. Elytra somewhat depressed, convex at sides, margins evenly curved, suture straight; truncate, apices broadly rounded, as elevated as centre. Abdomen lightly convex, dipping at apex, with at least four tergites exposed; apex rounded, not dentate. Prosternum with episterna inconspicuous. Mesosternum convex at centre; episterna oblique, small; sternal process small but sharp and rather prominent. Metasternum attaining sides, posterior marginal excavations for coxae shallow. Anterior coxae prominent, globular, small, contiguous. Intermediate coxae globular, contiguous; posterior coxae small, remote.

Anterior femora rather robust, intermediate and posterior normal; posterior scarcely reaching apex of abdomen. Tarsi slender. Genotype, *L. lacunosa*, n. sp.

A new genus has been made for this beetle on account of the following notable distinctions from *Ptilium*: (*a*) Antennae shorter and with no definite commencement of club; (*b*) pronotum with shallow depression occupying nearly the whole of the disc with slight rise in centre; (*c*) posterior margin of pronotum reflex; (*d*) base of pronotum narrower than base of elytra; (*e*) mesosternal episterna smaller and more oblique. The genus has been named in honour of Mr. A. M. Lea.

LEAPTILIODES LACUNOSA, n. sp. Text-fig. 8.

Elliptic depressed; yellowish-golden-brown, pubescent, pubescence golden. Head with pubescence fairly thick anteriorly, almost obsolete posteriorly; darker than rest of body. Antennae yellow, concolorous, each segment clothed with fine hairs, those on apical segment rather dark. Eyes pale, indistinct. Palpi stramineous. Pronotum light yellowish-brown with dark irregular patches a little in front of centre; pubescence very sparse and irregular. Scutellum subtriangular, sides slightly concave. Elytra more or less regularly pubescent, darker near outer apical angles. Abdomen much lighter than rest of upper surface. Under-surface yellow. Prosternum and mesosternum glabrous, vitreous. Metasternum pubescent. Legs yellow. Length 0.65 to 0.72 mm.; width 0.255 to 0.26 mm.

Habitat.—Ovalau, Fiji Islands (A. M. Lea). Type in South Australian Museum, cotypes in South Aust. Museum and Coll. Deane.

PTILIUM LIGNI, n. sp. Text-fig. 9.

Obovate; rather flat, widest (a little) across elytra, flavous, opaque, pubescent; pubescence short. Head rounded in front, curve conforming with eyes. Eyes creamy-white. Palpi with large segment pearly, terminal one long, curved, obliquely inserted. Antennae rather distant from eyes; scape and pedicel sub-cylindric, flavous, pedicel paler than scape; flagellum stramineous; terminal three segments forming the club; 10th and 11th acorn-shaped, much larger than 9th. Prothorax widest just before middle; posterior angles well formed. Scutellum normal. Elytra widest behind middle, margins inflexed on anterior three-quarters forming narrow epipleurae. Pygidium blunt, with tip exposed above. Pro- and mesosternum glabrous. Metasternum lightly pilose. Abdomen slightly darker. Anterior coxae oval, rather prominent, contiguous; intermediate coxae moderate, contiguous; posterior small, remote. Tarsi rather long. Length 0.575 mm.; width 0.271 mm.

Habitat.—Marysville, Victoria (C. Deane; in rotten wood). Type in Coll. Deane.

Not closely allied to any species. The abdomen, being orange-coloured, is darker than the sternum. The insect, although much lighter in colour than *P. wilsoni*, nevertheless has its anterior and intermediate tibiae much darker, an unusual feature.

PTILIUM ORIENTALE, n. sp. Text-fig. 9, *b*.

Elliptic-rectangular, scarcely convex, orange-yellow, opaque, pubescent, widest (a little) across elytra. Head full, rounded in front, not decumbent, lightly convex, brown, nearly black near eyes, thinly pilose. Eyes silvery-grey, set rather backward, of medium size. Antennae pale yellow, rather short, scape and pedicel rather thick in comparison to length; pedicel cylindric, open at apex; segments 3

and 4 thickening towards apex, subcylindric; 5, 6 and 7 barrel-shaped; 8 and 9 obovate; 9 larger than 8; 10 and 11 large, 11 larger than 10; flagellum dull. Pronotum finely punctate, widest at or just before middle, side marginal curvature greater anteriorly than posteriorly; anterior angles very obtuse, almost obsolete, posterior not well formed; base slightly wider than that of elytra. Scutellum normal to short. Elytra convex, entire, widest at or just behind middle; sides evenly curved; close fitting; apices not dehiscent; projecting just beyond apex of pygidium; opaque, very finely and faintly pilose, a dark brown longitudinal fascia on each elytron, fasciae a little oblique, being more widely separated anteriorly, there reaching almost to sides; their apices almost midway between sides and suture; length of fasciae more than one-third the length of elytron; suture dark brown. Wings black. Length 0.672 mm.; width 0.319 mm.

Habitat.—Glen Innes, N.S.W. (A. M. Lea). Type in Coll. Lea.

This rather handsome species possesses a slight resemblance in general facies to *P. torresensis* Deane, being readily distinguished by colour and markings as well as by the apices of elytra having internal angles, these being obsolete in *P. torresensis* Deane.

P_TIL_IUM PARALLELUM, n. sp. Text-fig. 10.

Ovate parallel; form rather broad, scarcely convex, robust, widest across elytra, dark brown, pubescent; pubescence short, regular, white; surface faintly granulose. Head broad, front lightly curved; base wide. Eyes easily visible from above, black with silvery sheen, scarcely prominent, of medium size; facets coarse. Antennae flavous, 0.454 of length of body; club three-segmented, strongly defined; scape cylindrical; pedicel barrel-shaped, brown at apex; segments 3 to 8 somewhat dusky, oval-cylindric; 9 and 10 nearly spherical in middle, of similar shape to each other; 10 larger than 9, 11 oval, larger than 10. Palpi not prominent. Pronotum subquadrate, widest just behind middle, base scarcely wider than that of elytra; sides lightly convex, not marginate; anterior strongly, posterior faintly obtuse; posterior margin somewhat sinuous; lightly convex both longitudinally and transversely. Scutellum rather narrow, not well defined; sides faintly concave. Elytra widest just before middle; apices dehiscent, rounded; outer angles rounded, sloping to sides; suture not raised. Pygidium a little exposed above; apex somewhat broadened. Mesosternal episterna oblique. Metasternum dark at lateral borders. Legs rather short; anterior coxae strongly contiguous; intermediate coxae normal, not deeply sunk; posterior coxal separation medium or less; anterior tibiae rather robust; posterior tibiae almost reaching apex of abdomen. Length 0.6 mm.; width 0.304 mm.

Habitat.—Taviuni, Fiji Islands (A. M. Lea). Type in South Australian Museum.

Differs from *P. latum* Deane, in form not so wide, size smaller, mesosternal episterna oblique, metasternal intercoxal plate not prominent, intermediate coxae less deeply embedded, legs smaller, posterior tibiae not reaching beyond apex of abdomen.

P_TIL_IUM RENNELSENSIS, n. sp. Text-fig. 11.

Parallel-elliptic; narrow, somewhat depressed, cylindric, widest a little across elytra, very dark brown, finely pubescent. Head black, subtriangular, rather produced in front, scarcely and irregularly pubescent, side margins slightly concave

before eyes. Eyes rather small, black. Antennae light brown, hair clothing scarce; scape short, pedicel moderately so, segments 3, 4 and 5 thickening to their apices; 6 and 7 elliptic, 8 to 11 ovate; club not abrupt, gradually larger from 8th to terminus. Pronotum black, punctate, glabrous, widest before middle; posterior margins sinuous, slightly oblique; anterior angles obtuse, posterior angles almost obsolete. Scutellum narrow, dark brown, margins black. Elytra subparallel, widest at or just before middle; apices rather broad, not dehiscent; dark brown, pubescent; suture black. Pygidium with the tip sometimes just visible from above. Prosternum dark brown, slightly pubescent, pubescence very short, sternites indistinct. Mesosternum with intercoxal process distinct, prominent. Epipleurae developed on basal third of elytra. Metasternum without conspicuous intercoxal plate. Abdomen pale on apical segment. Legs light brown; intermediate coxae not contiguous; posterior coxae only moderately separated; femora moderate to broad; tarsi short, robust, thickening at base; claws strongly arcuate. Length 0.525 mm.; width 0.205 mm.

Habitat.—Rennel Island, Torres Strait; lat. 9° 46' S., long. 143° 16' E. (A. M. Lea; under log on beach). Type in South Australian Museum.

Differs from *P. flavotermimum* Deane and *P. torresensis* Deane as follows: From the former, which it more nearly resembles, in having antennal club not abrupt, tarsi shorter and more robust at base, colour as described; from the latter in having form narrower and more parallel, scutellum narrow and pedicel broader.

PTILIUM BREVIPENNE, n. sp. Text-fig. 12.

Rather elongate, widest across elytra, light brown, pubescent. Head subtriangular, sides gently curved, scarcely convex on top, produced a little and dipping in front. Eyes small, golden-yellow. Antennae with scape and pedicel yellow, segments 3 to 8 light brown, 9 to 11 darkened by clothing of blackish hairs; scape and pedicel short and thick, 3 and 4 cylindrical, 5 irregular, 6 tapering at ends, 7 and 8 oval, 9 to 11 forming the club. Pronotum of same colour and clothing as remainder of upper surface, sides greatly rounded, anterior angles almost, posterior quite, obsolete. Scutellum with sides strongly concave. Elytra truncate, widest near apex, not dehiscent, shoulders rounded away. Abdomen long, several tergites exposed; tapering. Legs medium; posterior tibiae not reaching apex of abdomen. Length 0.715 mm.; width 0.247 mm.

Habitat.—Darling Ranges, W.A. (A. M. Lea). Type in Coll. Lea.

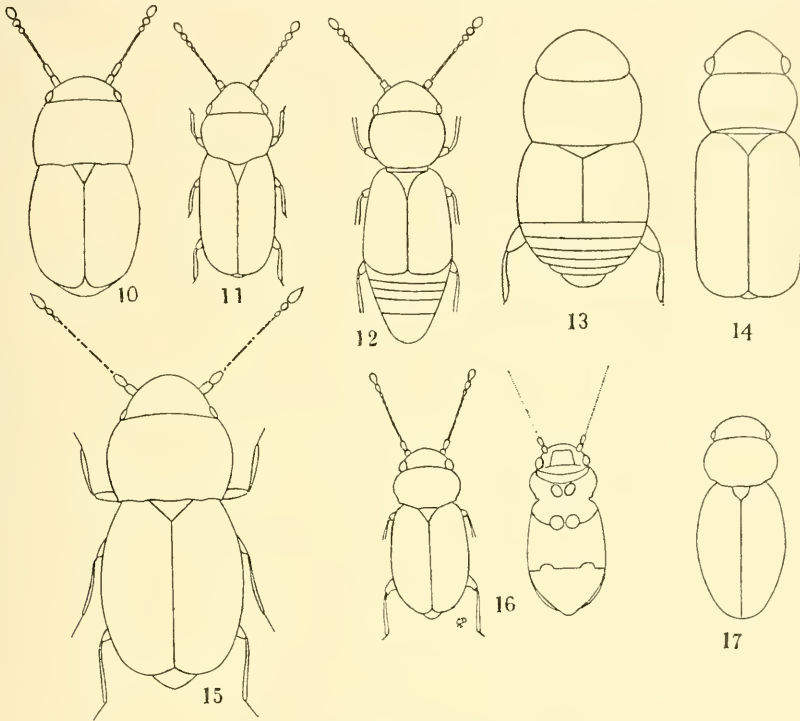
PTILIUM XANTHORRHOEAE, n. sp. Text-fig. 13.

Oval; faintly depressed, dull, translucent, yellow, widest across elytra. Head lightly convex. Eyes wanting. Palpi small, rather prominent, irregular. Antennae with scape large, barrel-shaped; pedicel smaller, thickening to apex. Pronotum with lateral margins evenly curved; anterior angles strong, slightly acute; posterior angles obtuse. Scutellum very short, wide, depressed. Elytra truncate, exposing six abdominal tergites; apices not rounded; suture closely fitting. Wings absent. Abdomen strongly tapering, lateral marginal spines strong; margin at apical three segments unconformable. Prosternal sclerite sutures strong, mesosternal feeble. Anterior and intermediate coxae of normal size, globular, contiguous; posterior moderately remote. Tarsal claws apparently single, long, slender. Length 0.53 mm.; width 0.27 mm.

Habitat.—Sydney, N.S.W. (A. M. Lea); in *Xanthorrhoea*. Type in Coll. Lea.

PTILIUM LEAI, n. sp. . Text-fig. 14.

Elliptic parallel; subrectangular, widest across elytra, a little depressed along medial centre of elytra, not nitid, yellow with blackish shades, sparsely pubescent; pubescence short, irregular. Head narrowly rounded in front, convex near eyes, rugose, blackish-yellow. Eyes black, conspicuous, not large. Antennae with scape and pedicel rather large, lemon-coloured. Pronotum widest just before middle, sides almost evenly rounded, marginal convexity a little greater



Text-figs. 10-17.

10.—*Ptilium parallellum*, n. sp. 11.—*P. remmelensis*, n. sp. 12.—*P. brevipenne*, n. sp. 13.—*P. xanthorrhoeae*, n. sp. 14.—*P. leai*, n. sp. 15.—*P. wilsoni*, n. sp. 16.—*P. simsoni* Matthews. 17.—*Ptenidula producta*, n. gen. and sp.

anteriorly; apical margin straight, basal slightly curved; finely rugose; blackish-yellow along anterior margin shading to a paler hue at base. Scutellum medium, clear yellow, glabrous, hardly nitid; sides faintly concave. Elytra yellow at and near base and apices, blackish-yellow over central half, subparallel, not tapering, side margins just curved, shoulders rounded, apices broad. Pygidium with only the extreme tip exposed above. Wings black. Legs yellow. Length 0.555 mm.; width 0.218 mm.

Habitat.—Sydney, N.S.W. (A. M. Lea; in *Xanthorrhoea*). Type in Coll. Lea.

A distinct species, differing from all existing ones in many characters, without any strongly marked departures; for these the descriptions must be consulted. The dark coloration of the centres of elytra may be due to their semitranslucency together with the black wings beneath.

PTILUM WILSONI, n. sp. Text-fig. 15.

Obovate; convex, widest across elytra, coarsely but not heavily pubescent, pubescence yellow, surface somewhat nitid-rugose, bay-brown, paler on basal two-thirds of elytra, paler on ventral surface except across middle of abdomen. Head convex, front and side margins forming one wide even curve from eye to eye, light brown. Eyes black, rather deeply set, of medium size. Palpi with terminal segment long, slender, slightly curved, transparent; the large segment ovate-elliptic, hoary, not prominent. Antennae 0.475 of length of body, golden-yellow, coloration uniform; scape and pedicel ovate, 10th segment somewhat flask-shaped, 11th acorn-shaped, pointed; bristles conspicuous. Pronotum convex, widest at middle, side margins nearly uniformly convex, posterior margin sinuous; posterior angles obtuse; base scarcely wider than that of elytra. Scutellum rather wide in proportion to its length, of same colour as basal two-thirds of elytra; side margins rectilinear. Elytra convex, widest at centre, side margins evenly curved; apices widely rounded, subtranslucent, dehiscent. Abdomen with pygidium exposed. Prosternum strongly sloping at episterna. Mesosternal process very inconspicuous. Metasternum smooth, almost glabrous; posterior margin faintly concave. Intermediate and hind coxae rather small, deeply set. Legs and tarsi normal; claws small but well formed. Length 0.65 mm.; width 0.29 mm.

Habitat.—Belgrave, Victoria (F. E. Wilson). Type in Coll. Wilson, cotype in Coll. Deane.

Although not very near *Ptilium simsoni* Matth., this species may be compared with it as follows: Form convex, whereas *P. simsoni* Matth. is flattened on centre of each elytron, the two, however, not being in the same plane; outline more oval; suture not raised or otherwise conspicuous; posterior angles of pronotum not so strong; 11th antennal segment pointed anteriorly; claws distinct; colour of a different hue, *P. simsoni* being much darker and between a walnut and a chocolate brown. In addition to the above the elytra of the new species are devoid of zonal divisions, whereas in the existing species the centre, sides and apical thirds are all differently sculptured, the sculpture, however, not being strong.

PTENIDULA, n. gen. Text-fig. 17.

Elliptic; highly convex, widest across elytra. Head widely rounded, short, steeply sloping on forward declivity, a little recessed behind eyes; clypeus broad in front. Eyes visible from above, small, rather prominent. Antennae with pedicel and scape medium, club two-segmented, 9th segment scarcely larger than 8th. Pronotum not strongly transverse, convex, sides much rounded, anterior angles obsolete, posterior irregular, obtuse. Scutellum shield-shaped, indistinct, rather short. Elytra very convex, extending well beyond apex of abdomen, widest at middle; shoulders rounded, apices entire, close fitting; epipleurae somewhat developed. Prosternum convex, episterna very convex, unconforming. Mesosternum with intercoxal process conspicuous but not protruding; episterna convex and unconforming. Metasternum reaching sides posteriorly but scarcely so anteriorly; posterior margin excised at outer edges. Anterior coxae small, contiguous; intermediate small, separated; posterior small, not widely separated. Anterior femora broad, intermediate medium, posterior slender. Genotype, *P. producta*, n. sp.

This genus has its nearest ally in *Ptenidium*, of Erichson, which it somewhat resembles in shape of body and elytra; also in the contour along the

posterior margin of the metasternum and the excisions at its lateral extremities. Colour, moreover, is a point of significance in that it draws attention on a casual inspection to the resemblance between the two genera. The new genus differs noticeably, however, in the nonconformity of the meso- and metasternal episterna. The form also is much narrower.

PTENIDULA PRODUCTA, n. sp. Text-fig. 17.

Reddish-black; surface smooth. Head black, slightly pubescent. Eyes silvery-black. Antennae dark brown, clothing normal. Pronotum nearly black, coarsely punctate, glabrous. Elytra pubescent, a lighter shade of brown at apices. Prosternum glabrous. Mesosternal episterna and metasternum glabrous. Legs walnut-brown. Length 0.55 to 0.59 mm.; width 0.246 to 0.25 mm.

Habitat.—Tweed River, N.S.W. (A. M. Lea). Type in Coll. Lea, cotypes in Coll. Lea and Coll. Deane.

PTENIDIUM MONTANUM, n. sp.

Ovate-elliptic; widest across elytra, highly convex, black with olive-brown apices to elytra, nitid, punctate, punctures shallow, delicately pilose, pilosity sparse and short. Head black, somewhat unevenly rounded in front, convex, nitid, narrowly marginate at sides; pilosity longer than on body. Antennae 0.474 of length of body; scape moderate, subcylindric; pedicel barrel-shaped, apex black and bispinose; segment 3 long, yellow, slightly swollen at base, subcylindric, slenderest of all; 4 and 5 subcylindric, dark yellow; 6 and 7 subelliptic; 8 elliptic, shorter than 7; 9 irregular, larger than 8; 10 obovate, narrow at apex; 11 ovate; 9 to 11 forming club; 10 and 11 much larger than 9. Pronotum black, widest behind middle, marginate at sides, highly convex, especially anteriorly; few coarse punctures on centre near base. Scutellum moderate, black, almost glabrous, sides faintly concave. Elytra black to very dark brown, widest before middle, marginate on anterior quarter; apices olive-brown, scarcely narrow, hardly rounded or dehiscent, impunctate. Legs brown. Length 0.91 mm.; width 0.51 mm.

Habitat.—Marysville, Victoria (C. Deane). Type in Coll. Deane.

Differs notably from *P. hughesae* Deane by head and pronotum marginate, greater convexity of pronotum, and punctuation of the latter. The scutellum is more sharply defined.

PTENIDIUM TENEBRICOSUM, n. sp.

Obovate; widest across elytra, convex, black with dark brown apices to elytra, rather nitid, faintly and irregularly punctate, sparsely setose, setae white. Head black, broad, widely rounded in front, sides not marginate. Eyes black. Antennae 0.46 of length of body; scape and pedicel light brown, unicolorous, barrel-shaped, pedicel not spinose; segment 3 short; 4 to 8 subcylindric, slightly thickening anteriorly, 9 to 11 elliptic, 10 and 11 darker and larger than 9; terminal seta long, black on basal half. Pronotum widest at middle, sides uniformly curved, not marginate; black, nitid, convex, not punctate; anterior and posterior angles rounded. Scutellum black, glabrous, nearly equilateral triangular. Elytra widest just before middle, sides evenly curved; very faintly and irregularly punctate, punctures very shallow, almost obsolete; apices integral. Legs brown, femora rather wide, tibiae slender. Length 0.98 mm.; width 0.543 mm.

Habitat.—Lorne, Victoria (from leaf débris collected by G. H. Moran). Type in Coll. Deane.

In outline this species resembles *P. offordensis* Deane, differing notably in having prothorax more convex, scutellum more sharply defined, apices of elytra entire, and clothing as described.

Omissions and Errors in Previous Papers.

1. *Philagarica pilosa* Deane: the outline drawing was omitted and is included herewith (Text-fig. 4a).
2. The genus *Leaduadicus* and the species *Trichopteryx walkomi* were named in honour of the late Mr. A. M. Lea, of Adelaide, and Dr. A. B. Walkom, of Sydney, respectively.
3. In the introductory remarks of the second paper, Mr. E. B. Blackbourne should read Mr. B. Blackbourn, of Melbourne.

The author is responsible and wishes to apologize for the above omissions and errors.
